RIVER STAGES AND FLOODS

By C. R. JORDAN

PRECIPITATION during February was generally above normal from the Potomac, Ohio, and lower Missouri Valleys southward with the exception of the Florida Peninsula, and generally deficient in the northern part of the country. Monthly totals were 2 to 3 times the normal in the far Southwest including southern California.

Snow depths increased during February in New England and in the higher elevations of the West. Reductions occurred in the Lakes Region and in Pennsylvania. In the Northeast, depths at the end of February ranged from bare ground in southeastern New England to over 3 feet in extreme northwestern Maine and from much bare ground in southern and western New York to over 5 feet in the Adirondacks. There were only a few inches of snow in the mountains of west-central Pennsylvania. Some of the heavier amounts in the far West were 85 inches at Cumbres, Colo.; 63 inches at Silver Lake, Utah; 121 inches at Paradise Inn, Wash.; and 80 inches at Soda Springs, Calif.

Stream flow during February continued generally subnormal throughout the Western States but increased considerably in the Southeast and to a lesser extent in the Central and East-Central States. Floods occurred in the headwaters of the Cumberland River Basin where drought conditions existed during January, bankfull to medium flood stages were reached in the streams of North Carolina, and light flooding was reported at scattered points from the South Atlantic coast as far west as Texas and Oklahoma and northward to the Ohio River. Light flooding also occurred at a few places in Michigan, Minnesota, and Iowa, resulting for the most part from melted snow and ice.

St. Lawrence Drainage.—Mild weather near the end of February melted a considerable snow cover in central and southern Michigan and the accumulated waters produced substantial rises in the streams. The Red Cedar River reached stages slightly above bankfull at Williamston and East Lansing and near bankfull at several other points. Only limited areas of lowlands were submerged and no damage of consequence was reported.

Atlantic Slope and East Gulf of Mexico Drainage.—Beginning near the middle of February and continuing into March, moderate to heavy precipitation fell over the Southeastern States from the Ohio River southward to Florida. Storms were frequent and drought conditions that persisted in this area since last fall were considerably relieved. Six pronounced crest stages were recorded on the Chattahoochee River near Roswell, Ga., between February 9 and the end of the month, reflecting precipitation fron 10 separate storms. The extreme dry conditions that have been prevalent in the area for several months produced a large deficit of soil moisture and the soil was capable of retaining a great amount of water. This, in addition to the fact that most streams were at very low stages at the beginning of the stormy period, prevented serious flooding. Bankfull to moderate flood stages were reached on many streams as shown by the table at the end of this report. Some streams remained above flood stage at the end of the month and will be discussed further in a later report. No estimate of the damage caused by the floods in this area has been received but it was undoubtedly small.

Upper Mississippi Basin.—Moderate rains over the Rock River Basin on February 26, augmented by the spring breakup and water from melting snow, caused some light flooding on the lower Rock River. No damage resulted from this overflow.

Mild temperatures beginning on the 21st and extending to the end of the month caused sufficient snow-melt to produce rapid rises in the Root, Zumbro, Trempealeau, and lower Black Rivers near the end of February. Bankfull stage was reached at Theilman, Minn., on the Zumbro River on the 26th as a result of an ice gorge that formed at the mouth of the stream. Local flooding was reported on Wilson Creek at Menomonie, Wis., on the 26th. No damage was reported.

The Mississippi River exceeded flood stage slightly at Louisiana, Mo., several times during the month. The stages were produced by the operations of Dam No. 24 and no damage resulted.

Missouri Basin.—Rapid rises occurred in the Big Sioux and Floyd Rivers in Iowa beginning about February 26 and considerable overflow resulted. Damage was confined mostly to roads and fences and has been estimated at approximately $1,000.

Ohio Basin.—Moderately heavy rainfall over West Virginia on February 22 caused rapid rises in the headwaters of the Monongahela River Basin and in the Little Kanawha River. Bank-full stages were just about reached at most stations and there was no serious overflow. Heaviest loss was in the vicinity of Dailey, W. Va., where damage to stacks of hay, highways and bridges, and water standing on prepared farm lands is estimated at $3,750. The Little Kanawha River at Glenville, W. Va., rose 23.5 feet in less than 24 hours on February 22–23. The crest was 3 feet above flood stage at Glenville but no damage was reported.

Heavy rains over the headwaters of the Cumberland River Basin on the 17th and 18th caused severe flooding in the headwaters of the Cumberland. Two homes were destroyed and many families were forced to seek higher grounds. Flood stage was not reached in the lower river but later rains produced a second rise in the river beginning at the end of the month and continuing into March which will be discussed in the March REVIEW. Damage figures have not yet been compiled. The Tennessee River was also above flood stage at Florence, Ala., from February 26 to March 5.

Arkansas Basin.—The Poteau and Petit Jean Rivers were slightly above flood stage during the month at Poteau, Okla., and Danville, Ark., respectively Only light flooding occurred and no damage was reported.

Red Basin.—The Ouachita River exceeded flood stage at Camden and Arkadelphia, Ark. Losses due to the suspension of business were estimated at $500. Minor overflow also occurred at Naples, Tex., on the Sulphur River but no damage resulted.

West Gulf of Mexico Drainage.—The Trinity River at Liberty, Tex., was above flood stage from February 1–4 and from 16–20. Losses caused by both of these floods were estimated at $1,000 for livestock and $1,500 for suspension of business. Most of the losses are believed to have occurred during the first flood period

The Elm Fork, East Fork, Trinity, and Sabine Rivers went out of banks at the end of February. A report of these overflows will be included in the March report.

Pacific Slope Drainage.—Heavy precipitation, averaging from 6 to 7 inches over the Los Angeles metropolitan area to 13 to 17 inches or more in the mountain areas of southern California, began on February 21. Precipitation was in the form of snow at the higher elevations.

Flood peaks from the storm were not excessive because of moderate antecedent precipitation and the impounding of water at higher elevations by a heavy snow cover. Flooding was mostly of a local nature. The situation in Los Angeles was aggravated by the delay in the repair of power lines to private homes resulting from a strike. The Weather Bureau airport station at Burbank, Calif. gives the following summary of the storm damages:

Flood stages were reported in this district on February 22, 1944. The main part of the storm was in the San Fernando Valley and damage was done around Canoga Park. The water came up around houses and high school buildings, doing considerable damage. Some streets were washed out and some areas flooded. Portions of a railroad near Sepulveda had to be repaired and one man got caught in his car parked in a wash and was drowned.

In the upper Los Angeles River drainage area there was a local cloudburst on the morning of February 22, 1944, with precipitation of 0.70 inch an hour at Malibou. It was a thunderstorm variety and seemed to have peak loads within short periods of time, rather than continuous heavy rains.

In the Tujunga area around Hansen dam, two cars were destroyed and several people were marooned in the mountains by snow and floods.

FLOOD-STAGE REPORT FOR FEBRUARY 1944

[All dates in February unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Michigan					
Red Cedar:	*Feet*			*Feet*	
Williamston, Mich.	7	27	27	7.5	27
East Lansing, Mich.	8	27	28	9.0	27
ATLANTIC SLOPE DRAINAGE					
James: Columbia, Va.	10	20	20	10.0	20
		25	25	10.2	25
Roanoke:					
Weldon, N. C.	31	19	21	34.7	20
Williamston, N. C.	10	20	(2)	11.3	27
Neuse:					
Neuse, N. C.	14	18	21	16.2	20
Smithfield, N. C.	13	15	23	15.8	21–22
Goldsboro, N. C.	14	16	28	16.8	24
Kinston, N. C.	14	20	(2)	15.1	28
Cape Fear: Lock No. 2, Elizabethtown, N. C.	20	11	23	27.0	20
Savannah: Butler Creek, Ga.	21	16	16	21.1	16
		18	19	22.1	18
Ogeechee: Dover, Ga.	7	26	(2)	----	----
EAST GULF OF MEXICO DRAINAGE					
Black Warrior:					
Lock No. 10, Tuscaloosa, Ala.	47	28	(2)	----	----
Lock No. 7, Eutaw, Ala.	35	21	22	35.5	22
		26	(2)	----	----
Tombigbee:					
Gainesville, Ala.	26	28	(2)	----	----
Lock No. 4, Demopolis, Ala.	39	23	(2)	----	----
Lock No. 3, Ala.	33	19	(2)	----	----
Lock No. 2, Ala.	46	24	(2)	----	----
Lock No. 1, Ala.	31	24	(2)	----	----
Chickasawhay: Shubuta, Miss.	30	29	(2)	----	----
Pearl:					
Edinburg, Miss.	20	27	(2)	----	----
Jackson, Miss.	18	20	(2)	----	----
Pearl River, La.	12	24	(2)	----	----

FLOOD-STAGE REPORT FOR FEBRUARY 1944—Con.

[All dates in February unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM	*Feet*			*Feet*	
Upper Mississippi Basin					
Rock: Moline, Ill.	10	27	(2)	10.9	Mar. 1–2
Zumbro: Theilman, Minn.	35	26	27	36.0	26
Mississippi: Louisiana, Mo.	12	1	6	12.1	4
		8	10	12.0	8–10
		12	(2)	12.3	28
Missouri Basin					
Big Sioux: Akron, Iowa	12	27	Mar. 2	18.3	28–29
Floyd: James, Iowa	14	25	29	17.6	27
Ohio Basin					
Middle Fork: Midvale, W. Va.	11	22	23	12.0	22
Buckhannon: Hall, W. Va.	10	23	23	10.7	23
Tygart:					
Dailey, W. Va.	11	22	23	13.85	23
Elkins, W. Va.	14	23	23	14.3	23
West Fork:					
Weston, W. Va.	15	22	23	16.5	23
Clarksburg, W. Va.	5	22	23	6.6	23
Monongahela: Lock No. 6, Pa.	19.5	23	23	25.7	23
Little Kanawha:					
Glenville, W. Va.	23	23	23	26.0	23
Creston, W. Va.	20	23	23	20.65	23
Cumberland:					
Williamsburg, Ky.	19	18	21	23.0	19
		29	(2)	----	----
Celina, Tenn.	28	19	24	38.4	21
		29	(2)	----	----
Clarksville, Tenn.	46	29	(2)	----	----
Lock A, Neptune, Tenn.	40	29	(2)	----	----
New River, Tenn.	18	18	18	19.5	18
		29	(2)	----	----
Lock F, Eddyville, Ky.	50	28	(2)	----	----
Tennessee: Florence, Ala.	18	26	Mar. 5	21.2	29, Mar. 2
Arkansas Basin					
Poteau: Poteau, Okla.	21	19	20	24.5	19
		29	Mar. 3	28.3	Mar. 1
Petit Jean: Danville, Ark.	20	10	12	21.6	11
		17	21	23.2	19
		29	(2)	----	----
Red Basin					
Ouachita:					
Arkadelphia, Ark.	17	18	19	17.8	19
		29	(2)	----	----
Camden, Ark.	26	23	23	26.1	23
Sulphur:					
Hagansport, Tex.	38	9	10	38.3	9
		18	18	38.0	18
		28	(2)	----	----
Naples, Tex.	22	21	24	22.6	23
Lower Mississippi Basin					
Wolf: Rossville, Tenn.	10	10	10	10.1	10
WEST GULF OF MEXICO DRAINAGE					
Sabine: Logansport, La.	25	26	(2)	----	----
East Fork: Rockwall, Tex.	10	28	(2)	14.0	29
Trinity:					
Dallas, Tex.	28	28	(2)	----	----
Trinidad, Tex.	28	27	27	28.3	27
Liberty, Tex.	24	1	4	25.0	2
		16	20	24.6	18–19

[1] Provisional, subject to correction.
[2] Continued at end of month.